

## IBM IntelliStation POWER 275 workstation



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### Highlights

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- ***Exceptional price/performance for high-end design and analysis applications***
- ***Memory and storage options for demanding engineering environments***
- ***Self-managing autonomic features for enhanced manageability and availability***

The IBM IntelliStation® POWER™ 275 workstation combines excellent performance and capacity features in a flexible, affordable package. It is an outstanding choice for high-end Mechanical Computer Aided Design (MCAD), graphic processing and other floating-point-intensive business and technical applications. Or using the 2D graphics accelerators, it can be used for less demanding applications such as software development.

The affordable 64-bit symmetric multi-processing (SMP) IntelliStation POWER 275 workstation offers significant price/performance benefits.

For CATIA MCAD workloads, it provides about two times the performance of its predecessors<sup>1</sup>, the IBM IntelliStation POWER 265 and RS/6000® Model 170, at a lower price. By reducing the cost of high-end design and analysis, the POWER 275 raises the bar for single-seat MCAD design and analysis solutions.

### **Graphics accelerators boost speed**

The POWER 275 supports the latest evolution of IBM 3D graphics technology: the POWER GXT4500P and GXT6500P Graphics Accelerators. These high-performance graphics accelerators can deliver up to a 20 percent performance boost compared to the previous generation of IBM graphics adapters, and at a lower price.

Both the GXT4500P and GXT6500P feature analog and digital output, a 128MB Unified Frame Buffer, 24-bit double buffering with resolutions up to

2048 x1536 at 60 Hz and application programming interface (API) support for OpenGL 1.2.1, graPHIGS and X11. Advanced 3D features include a 24-bit Z-buffer, 4/8-bit overlay, 8-bit double buffered Alpha, 8-bit stencil, Texture Mapping with up to 110MB texture memory, dual texture and 3D texture. The GXT6500P incorporates an additional geometry and lighting processor that helps to further increase performance.

The POWER 275 workstation supports a full range of graphics input/output devices including the Spaceball® 3D and Magellan XT 3D input devices, the L200p 20.1-inch TFT flat panel monitor, the C220p 20" viewable CRT and other keyboard and mouse devices.

#### **Advanced POWER technology**

The IntelliStation POWER 275 harnesses the advantages of POWER4+™ microprocessors and AIX 5L™, the high-performance UNIX® operating system from IBM. It features highly reliable 64-bit processors running at 1.0 GHz (one) or 1.45 GHz (one or two), with 8MB of L3 cache. The POWER 275 incorporates the POWER4+ microprocessor, which showcases the latest innovations in

copper and silicon-on-insulator (SOI) chip technology from IBM. This chip is among the fastest 64-bit processors in the world<sup>2</sup>. In addition, 64-bit addressing contributes to top performance by supporting large amounts of memory—allowing applications to keep more information accessible in high-speed memory, and enabling them to run faster by reducing the need to retrieve data from online storage.

Memory can be expanded from 1GB to 16GB. One integrated 10/100Mbps and one 10/100/1000Mbps Ethernet controller, three serial ports, and one parallel port help provide exceptional network connectivity and flexibility. An internal Ultra320 SCSI controller also can offer high performance and direct access to internal storage and media devices. The integrated controllers can eliminate the need for additional adapters, which saves space and costs.

The system provides one of the highest levels of internal expandability in this class of workstation. The compact deskside package features seven bays: four front-accessible, hot-swappable disk bays that can contain up to

587.2GB of disk storage, with room for a DVD-ROM, a diskette drive and an optional DVD-RAM or tape drive. Six PCI-X 133 MHz slots support the latest 64-bit adapters and provide backward compatibility for older 32-bit cards.

Its outstanding performance and IBM leadership and experience make the POWER 275 an excellent choice for running the entire CATIA suite, as well as other MCAD design and analysis applications such as I-deas, Uni-graphics and Deneb. The POWER 275 also brings new levels of performance to CAE applications such as ABAQUS, Patran, ANSYS, FLUENT and EnSight.

#### **Autonomic features for high availability**

Several innovations stemming from the IBM autonomic computing initiative—a blueprint for self-managing systems—contribute to uncompromising POWER 275 reliability, manageability and serviceability.

To boost availability, an integrated service processor—a computer within a computer—monitors system health. This feature can detect error conditions within the hardware and automatically place a service call to IBM, often before the problem becomes apparent to

Feature	Benefits
<b>Up to two 1.45 GHz POWER4+ microprocessors with L3 cache</b>	<ul style="list-style-type: none"> <li>• Provides improved system and application performance and higher reliability for applications in a smaller, more efficient package</li> <li>• Enables flexible growth in computing power with minimal disruption and incremental cost</li> </ul>
<b>Copper and SOI technology</b>	<ul style="list-style-type: none"> <li>• Improves processor performance and reliability while using less power and producing less heat to help conserve energy</li> </ul>
<b>Up to 16GB memory</b>	<ul style="list-style-type: none"> <li>• Allows exploitation of 64-bit addressing for database applications</li> <li>• Provides growth options for greater throughput</li> </ul>
<b>Choice of graphics accelerators</b>	<ul style="list-style-type: none"> <li>• Permits selection of 3D performance and price appropriate to application and budget</li> <li>• 2D graphics available as base or in conjunction with 3D graphics</li> <li>• Multiple 2D and 3D adapters are supported in a single workstation</li> </ul>
<b>3D input devices (Spaceball, Magellan)</b>	<ul style="list-style-type: none"> <li>• Allow 3D images to be manipulated more rapidly and more effectively—for improved design productivity</li> </ul>
<b>ECC Chipkill™ bit-steering memory</b>	<ul style="list-style-type: none"> <li>• Helps significantly lower number of memory failures that cause system outages, thus increasing system availability</li> <li>• Provides memory spares that are activated when multiple memory errors are encountered</li> </ul>
<b>Six PCI-X adapter slots (four available)</b>	<ul style="list-style-type: none"> <li>• Support both 32- and 64-bit adapters at optimum performance</li> <li>• Provide growth options for increased capacity</li> </ul>
<b>10/100/1000 Mbps Ethernet controller</b>	<ul style="list-style-type: none"> <li>• Allows connection to gigabit Ethernet networks</li> <li>• Integrated for lower cost</li> </ul>
<b>Hot-swappable disk bays</b>	<ul style="list-style-type: none"> <li>• Provide greater system availability and smooth growth by allowing swapping or adding of disk drives without powering down the system</li> <li>• Optional feature to “lock” disk drives in place</li> <li>• Ultra320 SCSI for fast access and data transfer</li> </ul>
<b>Built-in service processor</b>	<ul style="list-style-type: none"> <li>• Continuously monitors system operations and takes preventive or corrective action for quick problem resolution and high system availability</li> <li>• Allows diagnostics and maintenance to be performed remotely</li> </ul>
<b>Redundant hot-plug power and cooling subsystems</b>	<ul style="list-style-type: none"> <li>• Enhance system availability by allowing cooling fans and power supplies to be changed without interrupting operations</li> <li>• Provide backup power and cooling if primary unit fails</li> </ul>
<b>AIX 5L operating system</b>	<ul style="list-style-type: none"> <li>• Delivers maximum throughput for mixed workloads without complex system configuration or tuning</li> <li>• Provides upward binary compatibility to help preserve software investments</li> <li>• Extends application choices with Linux® affinity</li> <li>• Provides environment consistent with IBM @server® pSeries® servers for reduced support complexity</li> </ul>

users. Then, if repairs are necessary, the service processor can initiate dynamic reconfiguration, helping to minimize costly outages and reduce administrative overhead and support costs.

IBM Chipkill memory technology allows detection and correction of most multi-bit memory errors. This protection from memory failures helps prevent costly system memory crashes and improves workstation reliability. In fact, IBM studies show that systems with Chipkill memory are up to 100 times less likely to have outages caused by memory failure<sup>3</sup>. In addition, the POWER 275 includes redundant, spare main memory bits. Through a technique known as bitsteering, these spares can be dynamically activated and replace failing memory if memory bit errors exceed a threshold.

To boost availability and manageability, all POWER 275 workstations incorporate technology which places LEDs near critical components to provide lighted guidance so that problems can be quickly diagnosed and resolved. This also helps prevent downtime by identifying key components that are in danger of failing.

Reliability and availability features also include redundant hot-plug cooling fans and optional redundant hot-plug power supplies, which can be easily replaced without affecting system operations.

#### **The AIX 5L advantage**

The POWER 275 is matched with AIX 5L which provides real value in reliability, security and usability. AIX 5L is widely recognized as state-of-the-art in systems and network management. It also includes a choice of graphics application programming interfaces (APIs)—OpenGL and graPHIGS—allowing applications to be tuned for graphics performance.

#### **Even more value**

Pre-configured Express Configurations for POWER 275 workstations are easy to order and offer extensive features to meet the needs of engineering design environments. They are available at cost savings from standard prices for an outstanding value.

#### **Backed by IBM**

IntelliStation POWER 275 workstations are backed by worldwide service and support from IBM. The end-to-end, one-year basic warranty includes AIX 5L operating system support, hardware fixes, manned phone hardware support and call tracking.

The basic hardware warranty provides 8 A.M. to 5 P.M., next-business-day service. Some components are customer replaceable units (CRU) with the remainder requiring on-site service. Service upgrades, including 24x7x365 coverage, are available. The warranty terms and conditions may be different in some countries. Please consult your local IBM marketing representative or IBM Business Partner for country-specific terms and conditions.

IBM Global Financing offers a wide range of financing options to help manage the bottom line. In addition, IBM Global Services experts can help with business and IT consulting, business transformation and total systems management services.

#### **New standard for workstations**

Performance and price/performance, autonomic functions designed to help provide a highly reliable and available system and IBM support make the POWER 275 workstation an ideal choice for high-performance graphics and engineering design environments.

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## IBM IntelliStation POWER 275 at a glance

Microprocessor:	1-way 1.0 GHz; 1-way or 2-way 1.45 GHz POWER4+
Level 3 (L3) cache:	8MB (ECC—error checking and correcting)
RAM (memory):	1GB-16GB (ECC, Chipkill)
Internal disk drive:	One 36.4GB Ultra320 SCSI
Internal disk bays:	Up to four (36.4GB, 73.4GB and 146.8GB disk drives available; up to 587.2GB total)
Media bays:	Three
Expansion slots:	Six PCI-X 3.3v; two 32-bit, four 64-bit (three available)
Bus width:	32- and 64-bit

### Standard features

I/O adapters:	10/100 Mbps and 10/100/1000 Mbps integrated Ethernet controllers Integrated Ultra320 SCSI controller
Ports:	One parallel and three serial ports
Graphics accelerator:	GXT135P 2D graphics

### Optional features

Graphics accelerator:	GXT4500P (128MB Unified Frame Buffer, Texture Mapping) GXT6500P (128MB Unified Frame Buffer, Texture Mapping, lighting and geometry processor)
Displays:	L200p 20.1" TFT flat panel monitor L170p 17" TFT flat panel monitor C220p 20" viewable color CRT
Graphics input devices:	Spaceball 3D Magellan XT 3D
Media devices:	Diskette DVD-ROM DVD-RAM

### RAS features:

Copper/SOI microprocessors  
Chipkill ECC, bit-steering memory  
ECC L2 cache, L3 cache  
Service processor  
First Failure Data Capture  
Hot-swappable disk bays  
Hot-plug power supplies and cooling fans  
Dynamic Processor Deallocation (2-way systems)  
Dynamic deallocation of PCI bus slots  
Redundant cooling fan  
Redundant power supply (optional)

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<b>Operating systems:</b>	AIX 5L Versions 5.1/5.2
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<b>Power requirements:</b>	100 to 127 or 200 to 240 V AC (auto-ranging)
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<b>System dimensions:</b>	21.0" H x 7.9" W x 25.6" D (533 mm x 201 mm x 651 mm); weight—94.8 lb (43.1 kg)*
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<b>Warranty</b>	8 A.M. to 5 P.M., next-business-day for one year (limited) at no additional cost; on-site for selected components, CRU for all others; warranty and maintenance upgrades are available
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\* Weight will vary when disks, adapters and other peripherals are installed.

## For more information

To learn more about the IBM IntelliStation POWER 275 workstation, contact your IBM marketing representative or IBM Business Partner or visit the following Web sites:

- [ibm.com/servers/eserver/pseries/hardware/workstations](http://ibm.com/servers/eserver/pseries/hardware/workstations)
- [ibm.com/common/ssi](http://ibm.com/common/ssi)



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<sup>1</sup> Based on Albert-Battaglin Consulting Group TAGITT/CATIA 4.2.4 R2 Evaluation, June 24, 2003 available at [ibm.com/servers/eserver/pseries/library/consult/](http://ibm.com/servers/eserver/pseries/library/consult/)

<sup>2</sup> Based on SPECcpu2000 benchmark tests as of June 24, 2004 available at [www.spec.org](http://www.spec.org).

<sup>3</sup> IBM Study by Timothy J. Dell, "A White Paper on the Benefits of Chipkill-Correct ECC for PC Server Main Memory," (November 19, 1997) available at: [www.ibm.com/servers/eserver/pseries/campaigns/chipkill.pdf](http://www.ibm.com/servers/eserver/pseries/campaigns/chipkill.pdf).